The Interspecies Newsletter

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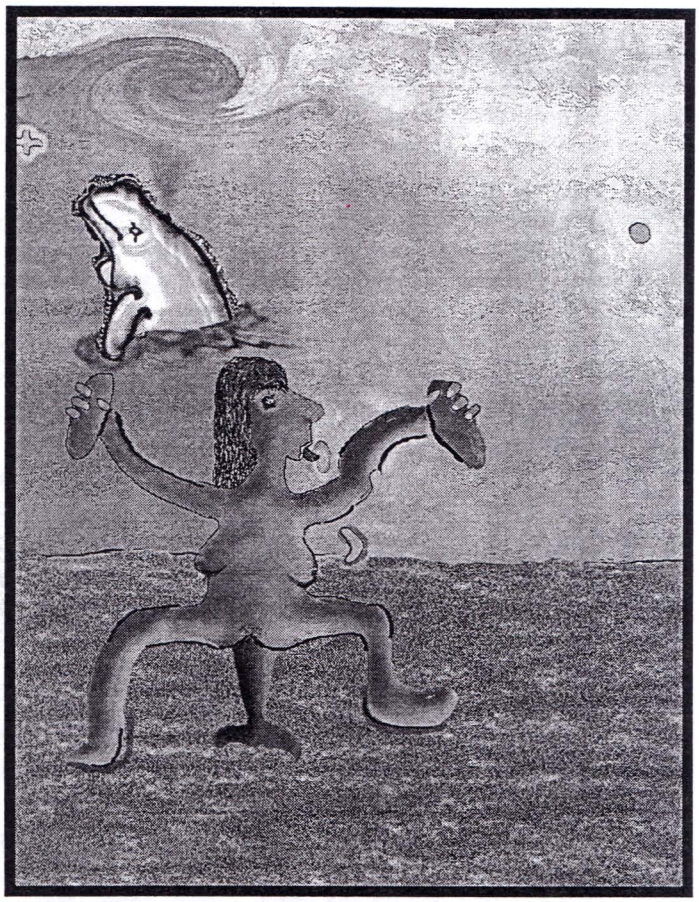
IC's June-July expedition to Russia involved more preparation than originally anticipated, and by the time the logistics were sorted out, it was simply too late to write, print, and mail the summer issue of the Interspecies Newsletter. It's the first time in over 20 years I've missed an issue and apologize for the lapse. Hopefully my omission is compensated by reading this account of our expedition.

—Jim Nollman August 2000



The Beluga Diary

Wednesday June 28

Out on the White Sea for the first time with a few musical instruments and IC's underwater sound system. My compadre, Rauno and I are living on a Russian Academy of Sciences ship named *Ecolog,* with an international cast of characters including a Finnish and Canadian film crew and a Russian ship crew. We use a small boat to motor out daily to conduct our research with the beluga whales.

The manager of the Russian scientific camp, Vlodya Baranoff, has informed me of two main beluga areas. The first is located at the tip of a glacial esker that forms a narrow, boulder-strewn peninsula curving a good quarter mile into the sea. A dramatic tidal bore forms off the tip of this esker, causing a dramatic plankton upwelling that attracts large schools of herring. This is the beluga's feeding area, and the main reason so many pods reside off Solevetsky Island during the summer months. The whales feed within a hundred meters of shore, a behavior exploited by the Russian researchers from Moscow's Shirshov Institute who have constructed a 10 meter tall log tower at the tip of the esker peninsula. The team of biologists and international volunteers (coordinated by The International Fund for Animal Welfare) follow a schedule that assures someone is sitting in the tower observing the whales 24 hours a day.

Yesterday, the Canadian director had her crew drop their "belugacam" into the water. This is a very expensive prototype underwater video camera, invented by the associate producer, and equipped with a 360 degree lens with a built-in screen that ostensibly allows the whales to view themselves. There is much grumbling among the Finnish film crew about the number of hours the Canadian director is spending to film this belugacam. They conclude that "a film that spends so much time advertising its own technology wo n't develop a story." My compadre Rauno jokes that between the Russian scientists and the Canadians, the whale's feeding area is turning into a junk pile of stainless steel, plastic, and glass. Two members of the crew have already injured their knees lugging the heavy film equipment over the very slippery rocks, and I anticipate trouble if the director does not take a less frenetic attitude towards her crew.

The second beluga area is two kilometers south of the esker. Here, where the current is lax and the human activity nonexistent, the whales conduct most of their social interaction including sleep. It is heartwarming to motor onto the water and watch 30 or 40 pure white backs roll across a flat ocean.

Rauno and I have decided to conduct our communication experiments anchored midway between the two sites in about 10 meters of water. That way, if the whales are interested in our sounds and music, they will come to us. If they're not interested, they'll simply stay where they are. A seaman from the *Ecolog*, a young guy named Vladimir, joins us to run the skiff.

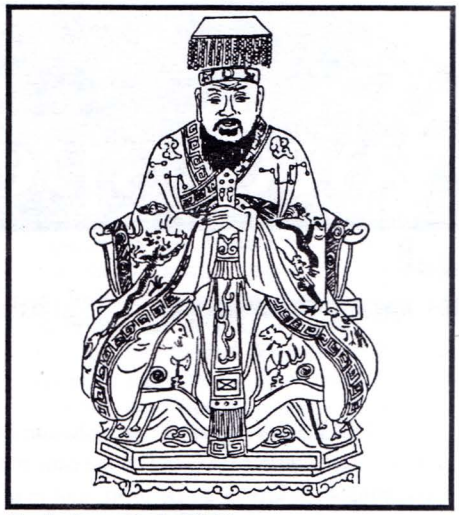
To begin the ten day experiment, I have brought along a bronze bell in the shape of a salad bowl, built by Tibetan lamas as the traditional instrument to focus the mind for meditation. Striking the bell with a stick produces a clear captivating vibration, that pulses across the water, and can be heard on the surface at least a kilometer away. I regard the bell as the "signature" of our experiment. We shall start every session by playing the bell for at least an hour. I prefer to hit it lightly, and in synchrony with the instruments own internal beats. Never loudly. Unlike every other species of cetacean I've worked with, belugas constantly vocalize in the air, so it seems likely they hear the whisper of the bell at their resting area.

For our first day on the water, I will play the bell, but keep stowed all the electric instruments that transmit sound underwater. These belugas are plainly skittish. Unlike orcas, dolphins, or humpbacks, they are prey animals whose predators include both orcas and human beings, and as prey, they perceive anything new in their environment as a potential cause for harm. For that reason, it seems wise to establish our objective of engaging these whales by employing the most gentle expression possible. Rauno and I are using hydrophones, a DAT tape recorder, and headphones to listen to the underwater environment.

After playing for two hours, I settle into a routine of striking the bell four times in succession and then allowing 30 seconds for the pulse to subside to silence. The whales are slowly starting to migrate en masse from their resting area to the feeding area. They surprise us. Suddenly a beluga swims underwater right past the boat, lingering a moment as if letting us admire its pure-white body turned green by the water. As it swims directly under the boat, Vladimir gets very excited as he points to a second whale lingering just an arm's reach away beside the transom. Just as quickly, this whale turns about to head back to the main pod.

One or both of these whales are "scouts". The director of the Russian beluga research team, Vsevolod Bel'kovich, has informed me that every new activity initiated within the belugas' habitat is examined by a scout who apparently decides whether it is safe for the rest to proceed. Bel'kovich, the dean of Russian whale studies has begun a provocative experiment to test the mental acuity of these scouts. Russian scientists have always been more open-minded to extrasensory phenomena than their Western counterparts. Bel'kovich has recently involved a Moscow-based police psychic who has met the Solevetsky beluga whales, or to be most precise, has met mind-to-mind with one of the whale scouts. When the session concluded, the psychic confided that the pod was disinterested in humans because they had not yet met anyone who could teach them about life or wisdom. But the scout agreed to answer a few questions the research team will eventually pose to them through the psychic. So far, it hasn't happened. The Russian economy is in utter meltdown, and these researchers don't have enough money for tents and camp stoves, let alone a travel budget to subsidize a controversial experiment.

Apparently, the scouts have granted us clearance because within five minutes the boat is completely surrounded by beluga whales. I notice several members of the film crew standing at the tip of the esker watching us through binoculars. They are spending yet another day dealing with the belugacam. The very second I start to chant *Amazing Grace*, at least one whale chirps like a canary, while another one makes a strange sound reminiscent of an old motor starting up merged with a whinnying horse. This close encounter continues for ten minutes, which seems an eternity for this work of interspecies communication. Then they leave, heading toward the esker to feed.



Confucious, God of Ethics

This encounter seemed almost too easy. Tomorrow I'll have to try the electric guitar transmitted through the underwater speaker. Being able to respond directly to the whale's modulations will allow me the opportunity to create a modulated dialogue. Interspecies jazz.

Thursday June 29

Discussions about yesterday's interaction caused such a stir at dinner last night that seaman Vladimir has been replaced by the ship's amiable supervising director, Vassili, who promises me extra rations of chocolate if I let him join us. Better than that, he wants to take notes and possibly publish an account of our experiment in the Russian Academy's oceanography journal. As happens so often, the charisma of the whales has gotten everybody excited.

A very stiff current greets our arrival at the same anchoring spot. Today,

there are fifteen whales playing just 150 meters closer to shore from our location. They are vocalizing and we record it. After working with orcas who vocalize loudly enough to hear them 3 or 4 miles away, the belugas seem exceedingly quiet by contrast, and it makes me wish they'd come a little closer. The variety of their calls surpasses anything I've heard from any other cetacean. One of the Russian researchers has characterized 24 different types of calls, and given me a tape that demonstrates all the variations. Rauno turns on the tape machine to record the whales. Some of the sounds are simply out this world, including percussive huffs, jazzy riffs, neighs, baaaas, chirps, wows, and a few calls that sound like vacuum cleaners and draining sinks from another galaxy.

I start off playing the bowl and chant two notes over and over again. Within a few minutes the performance has developed into 15 seconds of sound interspersed with 30 seconds of silence. We are all startled when the whales turn silent, then begin to vocalize only within my periods of silence. They slowly turn up the volume of their calls with even more animated sound effects. Soon, it becomes apparent that they are also drawing closer to us. This is definitely the start of a dialogue.

As the exchange continues to develop, a noisy motor boat turns the corner of the esker, and heads directly towards us. Although the boat is still one kilometer away, within a minute the whales have retreated. They head out to sea. End of session.

We remain anchored. Eat lunch. Ninety minutes later I plug in an elaborately carved electric guitar, built by me, just for this trip. But I make a serious mistake. When I turn on the guitar it sounds quiet through my headphones so I crank up the volume and try it again. Rauno throws his own headphones to the floor in pain, making me realize that my own hydrophone must be malfunctioning because the underwater speaker is transmitting too loud for comfort. Fortunately there are no whales nearby. If they had been close, I can guarantee it would have taken days to regain their trust.

Sunday July 2

Same place. When we begin, the belugas are playing one kilometer south at their resting area. They show no response to the bell. I eventually plug in the guitar. They respond negatively, leaving the area and heading out to sea to get to the feeding area.

The beluga whale has a brain larger than a human beings. The species almost certainly possesses the rudiments of a true language. Yet in this age when all of wild nature seems in full retreat from wanton human violence, the abstract idea of a person trying to engage this threatened, brainy species in a meaningful dialogue sometimes seems best left to people capable of witnessing what it is they believe rather than vice versa.

Everyone is surprised that, at least so far, that interspecies bonding has been so effortless to achieve. After a week spent here, the whales are giving us many explicit signs that they are as interested as we are to build an acoustic interface between our two species. Time will tell if they continue to work with us develop a common ground for correspondence. How it develops remains impossible for any of us to predict. How could it be any different, since we grant the whales equal discretion to direct the course of our mutual voyage of discovery.

Kuan Yin, Protector of Animals

If only we can find enough funding to return to this place next summer. Unfortunately, working in Russia on a shoestring is simply out of the question.

Rauno has his own instrument of sorts, a digital phrase sampler which allows him to record short bursts of beluga sound, and modulate the recorded data in various ways. He can stretch a five second call to ten seconds without altering the pitch. Or he can shift a pitch, for example a call in the key of C up to the key of D or E without altering the time duration.

Rauno's task is more linguistic than communal. The sampler lets him collect up to thirty-two individual "words" from the local beluga lexicon. These are stored in the computer's memory and can be played back into the water by simply pressing a button. Pressing several buttons in succession may create a sentence. Or nonsense. Rauno is a physicist whose day job is at the Swiss Cyclotron. He has distinguished himself by designing several sub-atomic detectors. Given this experience, and his notable computer expertise, Rauno eventually plans to write voice recognition software into the sampler to help ascertain which individual whales make which sounds. With luck and perseverance, he hopes to eventually isolate individual beluga words which would be a first in cetacean cognitive science. With years of time and some—as yet unknown—source of sponsorship, Rauno believes his research could lead to the actual meaning of these wordss.

Unfortunately, his two attempts to engage the whales with digitized calls has met with the same lack of success as the electric guitar. A few nights ago, he spent hours listening to our small but growing library of White Sea beluga recordings, and then programmed eight calls onto the machine. But the first time he pressed a button yesterday morning, the whales vanished for several hours. Rauno displays a contagious optimism, and concludes that it will take a few days for the whales to feel secure around amplified sound. We'll keep on trying.

Tuesday, July 4

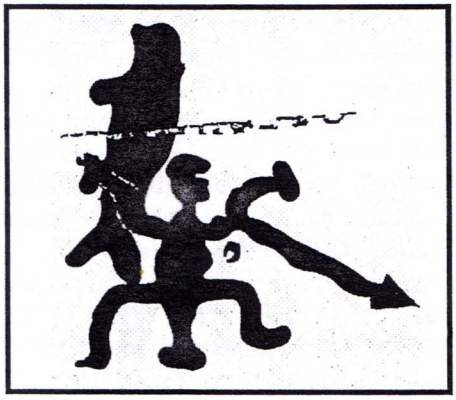
The inevitable has occurred. The Finnish cameraman has quit the film. He has spent the last 24 hours in his bunk, emerging only when the director is on shore filming. He's hurt his leg badly after being asked to take too many risks on the esker's slippery rocks. When I mention that pay for my own contribution remains an unresolved issue despite several attempts to discuss it with the producer, he warns me in no uncertain terms that the director is way over budget filming shots he believes are extraneous to the beluga film. His greatest complaint focuses on the belugacam, for which he believes he's been shooting a commercial. This guy complains too much about too many things. Then again, everyone involved in the expedition has, at one time or another expressed dismay over the two Canadians' method of directing a film by temper tantrum.

It was warm and calm here on the White Sea during our first week. We worked in t-shirts, and only changed into long-sleeves to go to shore where the mosquitoes, the no-see-ems and the deerflies are murderous.

Today the wind is blowing 35 miles an hour, and the temperature is near freezing. Ironically, the film director, who works from a schedule written up weeks ago, has chosen today to film us working with the whales. The process seems a cruel joke because everyone knows the whales have fled out to sea. "This is film," she tells me, "We can edit in the whales later on". Two boats, one containing Rauno and I and the other containing the eight-person crew, tie up together on anchor. I play the bell awhile, but no whales show, of course, and after fifteen minutes my hands are numb from the cold. I warn everyone to make themselves comfortable, because this process might take four or five hours. But after fifteen minutes, I notice the director consulting her watch more often than her binoculars, so I declare the situation a waste of time, and ask to be taken back to the ship.

We are taken instead to the esker to be interviewed out of the wind. Almost inconceivably, the director decides to place Rauno and I in the middle of an Arctic tern nesting area. Even as we discuss on camera our working method for developing amiable relations with animals, we are bombarded by angry birds zooming in to peck at our heads. What can I say except that it really did happen.

Nonetheless, I can say with gusto that I enjoy immensely the camaraderie between the Russian ship crew, the Finns, and Rauno and myself whose nationalities everyone describes as beluga nation.



Ravdonikas sketch from 1937

Wednesday July 5

We have left the Russian ship to camp in the scrub forest at the foot of the esker. This morning I spent two hours by the beach striking hammer to chisel to carve the petroglyph of a walrus into a flat granite boulder. There are glyphs in the general vicinity that display a large marine mammal with protuberances sprouting for their mouths and which are purported to be walrus, although neither the historical record nor fossils can verify that walrus ever lived in the White Sea. Rauno assures me the ancients would not carve walrus unless they lived here. He is already strategizing a future project to reintroduce walrus to Karelia. What a guy!

Before we arrived on Solevetsky, We spent two days at a famous petroglyph site. The beluga shaman glyph, which has precipitated so much of our own activity here, was located along an ancient river bed. It was thoroughly cleaned of years of lichen growth, permitting us to make what is likely to be the first, ever rubbing. As it turns out, the image we have all been working from is inaccurate. It had been drawn in the 1930s by the Lithuanian archeologist, Ravdonikas. But he sketched it instead of using the more accurate method of rubbing.

For this reason, the mysterious object he depicted as an arrow erupting from the shaman's elbow, and which has caused a half century of problems for interpreters, is actually a tongue issuing from the shaman's mouth. Ravdonikas also omitted a spout issuing from the whale's blowhole. Since many petroglyphs exaggerate features to describe talents—big feet for a swift runner, and long penis for a father of many children—everyone in our party agrees that the shaman and the whale are singing to one another. The rubbing also shows a sun, a moon, and a star, a heavenly confluence that suggests a specific date when this interspecies ceremony occurred.

Thursday July 6

Warm weather, flat sea. As we anchor, 25 belugas swim one km to the south in their resting area. Today we have invited the Finnish/Colombian photographer Hernan Patino, who is on Solevetsky as part of Rauno's program to promote eco-tourism as an economic measure to help save these whales. I play the bell for two hours. Slowly the whales gravitate towards us, but then pass us by.

A dramatic thunderstorm forms out at sea, slowly moving towards us with increasing flashes of lightning. Maybe it's a message from the gods, telling me to try electricity. I pull out the electric guitar, and start playing very quietly, repeating the chord progression of my song "Heartland" (D-A-Bm—G-D-A—D-A-Bm-G—G-A-Bm) in a pronounced reggae rhythm that relies on precise silences between chord changes. After an enormous thunder clap, the whales suddenly start vocalizing,

Our own rubbing of the same glyph

then move close to our boat. The scout keeps coming, finally slides past us within a meter of our starboard side, then turns about to stick its nose right up against the underwater speaker. Over the next fifteen minutes, eight more whales move to within 100 meters. They are vocalizing, although at this point it is impossible to tell whether they are listening to me and improvizing with the guitar's rhythm, or merely calling to one another at the same moment I play. The distinction is critical since the former defines intrerspecies communication while the latter is a bit like singing to a karaoke machine.

A subtle but crucial change occurs that defines the relationship. The whales vocalize all together, but only during the five second silences between each of my chord changes. They stop when I strum a chord, then fill in the next silence in turn. Rauno also hears it. We are both jubilant. The whales are vocalizing precisely in the silent holes of the reggae progression.

Although I've worked intensively with orcas for 15 years, this expressive level of musical collaboration has seldom occurred. If nothing else, these White Sea beluga whales seem to be living up to their intellectual reputation. Is it any wonder that the Russian researchers emphatically conclude that belugas defy our definitions of animal intelligence.

This may only be the seventh day we've been out on the water, and yet already the whales have chosen to engage us with their keen knowledge of rhythm and melody. The whales sing while the thunder booms. Not one, but two thunderstorms are converging on us from opposite directions. I long to stay out here even another five minutes, but our Russian boatman demands we head back to shore.

The film making process grows more troublesome by the day. The associate producer has set up a video monitoring station in the heart of the tern nesting area. Today, a group of us watched from a distance, as he used a paddle to spend a full hour swatting terns out of the sky. I was especially embarrassed that the Russian beluga scientists watched him do it. When I asked him about it later, he told me he "only" killed two birds.

Friday July 7

The thunderstorms have continued without abating for two days, essentially ending our last opportunity to engage the whales with sound. Rauno and I are already discussing a strategy to help us return here next summer. Hernan seems committed to join us, and with his skill at fundraising, and his incredible enthusiam for this work, his participation will suredly help the cause.

At this point, we are all licking psychological wounds inflicted both by the film producers and the Russian bureaucracy. Perhaps this explains why Rauno and I spend so much energy discussing what we are <u>not</u> willing to endure. I fully expect that within a month or two, our love of this wild place and the creative promise of the whales will linger as the main memory of this summer's trip.

If we are to return, we agree that we need our own boat; nothing fancy, but big enough to live in comfortably for three weeks. If funding seems forthcoming, and if our growing list of Karelian political and scientific allies remain helpful, we should be able to pull it off. Stay tuned.

Editor's note: The first days of our Russian expedition were spent alongside the Vyg River, whose watershed once drained all of central Karelia until Stalin had the river's flow re-directed in the 1930s while building the White Sea Canal connecting the Baltic Sea with the Arctic Ocean. This monumental task was completed mostly with pick and shovel, by hundreds of thousands of slave-laborers who were eventually killed as part of a horrific ethnic-cleansing of Karelia.

It was here, along the granite banks of a mighty river now reduced to a trickle, that literally thousands of Karelian petroglyphs have been re-discovered in the past hundred years.

Friday June 23

The high walls of the nearly empty river bed substantiates my hunch that beluga whales once swam up the Vyg River, at least as far as the site of the beluga shaman glyph. One wonders if the glyph commemorates an actual sonic relationship between one woman and one whale, or if instead, it relates a creation myth about a totem god who birthed the first beluga whale.

As much as these glyphs, it is the constant sound of falling water that holds me in rapture. During the two full days our group is documenting the artwork, I have set out a few times on my own to explore the babbling brook that now fills the bed of the vanished river. The smooth granite canyon wanders for about a mile through nothern forest. If I remain vigilant, I hope to discover my own petroglyph.

Eventually, I am stopped by deep mud along a side creek. I can not pass, so lie on the grass to study two orange and gray butterflies exult at the expanse of apricot flowers reflecting the low sun. I gaze long at pebbles, and a tiny purple flower that attracts a lone bumblebee. A white and black Arctic bunting lands on my sneaker, takes a peck at the red label before flying onto a nearby rock.

A gust of wind carries the sound of falling water to my ears. I rise, skirt the bulge of an ancient landslide to confront two cascades dropping into a wonderland of pools

midway up a bluff. Am I mistaken, or do the two cascades seem to be tuned in perfect thirds?

I back up twenty feet, listen attentively, trying to pick out the trace of a song emerging from falls and pools. This is no easy task, demanding equal parts concentration and imagination.

Years ago, on a solo month-long backpack through the Sierra Nevada, I spent hours and days learning how to optimize creek listening, and often camped beside promising waters to better study the aesthetics of creek song. The most pleasing tones emerge just after dusk, when the air cools down and vapor collects in the canyon bottoms to enhance the bass tones concealed by the dry heat of the day. Water falling over a rock may produce distinct intervals of tone, essentially rhythms that either harmonize or cancel the tones created in nearby falls. Water dropping short distances into deep pools produces the most euphonious sonorities. A song can alter inexorably as a listener moves around the creek.

It is said that certain creeks hold every song ever sung, although I believe the case is overstated. Large roaring creeks *may* contain every song, but they achieve this distinction by generating white noise that buries the pure tones. One might just as easily conclude that radio static holds every song.

The width and depth of a creek, its rate of flow, and its angle of descent determine a creek's musical potential. Large roaring creeks are too noisy to be musical. Lax-flowing creeks are too quiet. Mere drips falling down a stairway of ledges into deep pools usually provide the most pleasing timbres, although they generate too little variety to grant the human imagination free reign in picking and choosing notes to create an actual song. The most musical creeks vary between two and six feet in width. They often lie just below alpine meadows where the land is sufficiently canted to produce falls, although no fall is more than two feet in height.

Oh ye emasculated Vyg, debased monument to human hubris, I close my eyes hoping to hear your riversong, but perceive nothing amidst the moaning of 300,000 ghosts who still lament Stalin's scheme to make the world reflect his own iniquitous image. I find a seat in an enclosed room of river-smooth boulders. A small cascade plops clear tones of falling water into a deep cavity directly below my perch. It's dronal tone is a source, not of song, but of meditation.

Wright Creek, located in the High Sierra below Mount Whitney was the most tuneworthy stream I ever experienced. The first evening I listened to an infinitely deep baritone singing *El Toreador* for nearly half an hour. I was stunned by the performance, and it prompted me to linger a second night. That next evening, the alpine meadow sounded like Elvis crooning a ballad I'd never heard before. I felt quite certain that if, somehow, I could have gone backward in time to circa 1958, and then guided Elvis to this very spot, the song we both heard would have become one of his biggest hits.

I conclude that some of humanity's most ancient music was probably learned by our distant ancestors camped beside creeks. The tunes they heard rising from the falling waters, they attributed to fairies—water spirits—who hid in the rock cavities by day and emerged at dusk to start their songfests. A musician in the tribe learned the tune and then taught it to the rest of them. And when the progeny of the tribe revisited the same creek, perhaps a hundred years hence, a tribal songline cued them to listen to the same fairy singing a tune that, by now, they all knew by heart.

Intuiting the ancient human relation to running water flowing over rock helps me to understand the riverside petroglyphs in a way no archeologist can fathom while sitting at a desk styudying images on paper. Did the artists chip at the rock in synchrony with the sound of nearby falling water? Were their ceremonies accompanied by songs they believed they heard in the creek, and altered each season as the rhythm and tone of the flow also altered?

One location might have produced such pleasing songs as to entertain a carver for a week or a month without tiring, while another site was abandoned after just a day of toil. If it's true, then it seems no accident that the greatest site of all, here at Zalavruga, is located on an acres-size slab of granite over which swift water once flowed and pooled to produce euphonious sound at the most minimal depths. The site seems constructed like a vast drum.

Perhaps the subjects of the petroglyphs were neither brave hunters nor fertile women from their tribe, but creek personage, keepers of place and music makers.

Sixty Minutes

IC produces its second project of the summer in late August, working for the fourteenth summer with the orca pods who reside along the northern coast of Vancouver Island. Two of us will anchor in the same cove IC has used since 1983, transmitting sound into the water at night when the heavy ship traffic dwindles.

This summer's project will be filmed by the CBS-TV news show, *Sixty Minutes* as the primary focus of a longer piece about making music with orcas. The CBS crew spent late June on Puget Sound filming The Seattle Cantabile Choir under the able direction of Fred West, who performed an evening's worth of chorale music at the whalewatch park on San Juan Island, piping their music directly into the water. Significantly, the orcas convened offshore to listen.

The *Sixty Minutes* correspondent will spend four days on our boat, interviewing IC directors Jim Nollman and Bob Wood, and documenting the process of our interactive study with the two hundred orcas who live in the vicinity. The show will be aired sometime this fall, probably during their new Tuesday night slot.

Watch for it.

Animal Morality

Marc Bekoff

Animal play is obvious, but animal social morality isn't. People often wonder if some nonhumans are moral beings with codes of social conduct that regulate their behavior in terms of what's permissible and what's not during social encounters.

Social animals provide many insights into animal morality. Individuals coordinate their behavior; some mate, some hunt, some defend resources, etc. Individuals know what they can and can't do, and the group's integrity depends upon individuals agreeing that certain rules regulate their behavior.

Consider wolves. For a long time researchers thought pack size was related to food resources. Wolves typically feed on such prey as elk and moose, each of which is larger than an individual wolf. Hunting takes more than one wolf, so it made sense that packs evolved because of the size of wolves' prey.

However, long-term research by David Mech showed pack size was regulated by social, not food-related, factors. Mech discovered that the number of wolves in a coordinated pack was governed by the limits of bonding (social attraction factor) balanced against the number of individuals from whom an individual could tolerate competition (social competition factor). Codes of conduct, and consequentially packs, broke down when there were too many wolves.

What about social play and the development of social morality? It's thought that during play, while individuals are having fun in a relatively safe environment, they form social bonds, acquire different dominance ranks, and learn what they can and can't do to others: how roughly they can interact, and how to resolve conflicts. They generalize these codes of conduct to other group members and other situations. Individuals also learn to anticipate what others will do in certain situations and to behave flexibly in changing environments.

As a result of lessons in social cognition and empathy they learn what's "right" or "wrong", what's acceptable to others, the result of which is the development and maintenance of the pack. Social morality doesn't mean other animals are "wrong" when they kill for food, for they've evolved to do this. Research with various dogs also shows that pups of more-social species (wolves) play more than youngsters of less-social species (coyotes, red foxes, golden jackals).

Rules of social play transfer to codes of social conduct that facilitate the smooth functioning of a social group. What better atmosphere to learn social skills than play, where there are few penalties for transgressions?

Human morality has some origin in the behavior of nonhuman animals. Social morality, knowing right from wrong, and behaving fairly, is an evolved trait shared by many of our animal kin. We aren't alone or unique in the arena of social morality.

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Music review

Tuva, Among the Spirits
Sounds Music, and Nature
Smithsonian Folkways, SFW 40452

This CD offers a sonic journey through a landscape whose inhabitants preserve the oldest extant form of human music making. The producer, Ted Levin, refers to the concept as "sound mimesis", although that latinate phrase may obscure what is a simple concept of chanting to harmonize with landforms, weather patterns, and animal calls. The music of Tuva is not a collection of "songs" as Westerners know the term, but an oral tradition of *sounds* created to actively engage the ambient sounds of nature.

...The spiritual nature of mountains and rivers is believed to be manifested not only through their physical appearance but through the sounds they can be made to produce through human agency. The echo that results from singing in proximity to a cliff, and the interaction of a human voice with the gurgling water of a brook or the swishing air currents of a strong wind may be imbued with spiritual power.

...In producing the CD we had no intention of commercializing Tuvan music, but our release seems to have been at least partly responsible for turning Tuvan music into a major phenomenon on the international "world music" scene.

IC Seeks Grant

The Internet publicizes the projects of Interspecies Communication Inc. to a greater audience than ever before. One result is that IC director Jim Nollman is increasingly getting invited around the world to make presentations about our group's unique work with whales. But unless IC acquires a basic powerbook computer, taking this multimedia show on the road remains a risky venture, vulnerable to the tools available at each venue.

Two examples explain the problem. At a March event in Seattle, the promoter's Mac computer was simply inadequate to the task of playing sound, and the overflow audience never got to hear music with whales which is the cornerstone of the show. At a January show in Talinn Estonia, the promoter couldn't find a computer at all so in a rush, images were reprinted as transparencies. Unfortunately, this change in media drastically compromised the impact of the animated presentation.

Unwilling to contend any longer with this problem, we have decided to cancel several dates in Europe this September until we can afford our own computer. More precisely, IC needs a Macintosh G3 powerbook with 128 mb of memory. This Mac laptop will allow us to show the IC presentation anywhere in the world.

The cost is $2700. As always, all donations are tax deductible.